CLAIMS

1. A process for catalytic dehydrogenation of a dehydrogenatable hydrocarbon process stream to the corresponding olefin or olefins, the process comprising contacting the dehydrogenatable hydrocarbon process stream under dehydrogenation conditions with a mesoporous zeotype catalyst having an intra-crystalline, non-crystallographic mesopore system and a mesopore volume of the zeotype crystals above 0.25 ml/g and comprising at least one element belonging to Groups 5-14.

2. A process according to claim 1, wherein the at least one element is chosen from the group of chromium (Cr), Molybdenum (Mo), Wolfram (W), Rhenium (Re), Rhodium (Rh), Iridium (Ir), Nickel (Ni), Palladium (Pd), Platinum (Pt), Copper (Cu), Silver (Ag), Zinc (Zn), Gallium (Ga), Indium (In) and Tin (Sn).

3. A process according to claim 1, wherein the at least one element is Re.

4. A process according to claim 1, wherein the at least one element is Pt and Sn.

5. A process according to claim 1, wherein the at least one element is in the form of the metal, the carbide, the oxide or the nitride.

6. A process according to claim 1, wherein the zeotype is a mesoporous zeolite.

7. A process according to claim 1, wherein the mesoporous zeolite is mesoporous ZSM-5 or mesoporous HZSM-5.

8. A process according to claim 1, wherein the dehydrogenatable hydrocarbon process stream contains one or more dehydrogenatable compounds belonging to the group $R\text{-}CH_2\text{-}CH_3$, where R = H or $C_{1\text{-}4}$.

9. A process according to claim 8, wherein the dehydrogenatable compound is ethane, propane, n-butane or i-butane.

10. A process according to claim 1, wherein the dehydrogenatable process stream contains a mono-cyclic aromatic compound.

11. A process according to claim 10, wherein the mono-cyclic aromatic compound is ethyl benzene or para-ethyl methyl benzene.

12. A catalyst for use in the dehydrogenation process of claim 1, wherein the catalyst comprises a mesoporous zeotype catalyst having an intra-crystalline, non-crystallographic mesopore system and a mesopore volume of the zeotype crystals above 0.25 ml/g and comprising at least one element belonging to Groups 5-14.